NON-PUBLIC?: N
ACCESSION #: 9307270061
LICENSEE EVENT REPORT (LER)

FACILITY NAME: TURKEY POINT UNIT 4 PAGE: 1 OF 3

DOCKET NUMBER: 05000251

TITLE: REACTOR TRIP DUE TO MANUAL TURBINE TRIP
EVENT DATE: 06/22/93 LER #: 93-002-00 REPORT DATE: 07/22/93

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 33%

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: J. E. Knorr, Regulation and Compliance Specialist
TELEPHONE: (305) 246-6757

COMPONENT FAILURE DESCRIPTION:
CAUSE: B SYSTEM: TG COMPONENT: 94 MANUFACTURER: W120
REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT:

On the morning of June 22, 1993, Turkey Point Unit 4 was at 100% power and conducting a turbine trip test on the main turbine in accordance with procedures and procedural requirements. At the successful completion of the turbine trip test, the plant operators were unable to relatch the turbine trip. Turkey Point Unit 4 was reduced in power with the intent of taking the turbine off line to trouble shoot and repair, if necessary, the turbine trip latching mechanism.

At 1231 Eastern Daylight Time (EDT), with reactor power having been reduced to approximately 33% power, loss of turbine control oil pressure resulted in a turbine anti-motoring trip followed by a generator lockout. Based on the turbine anti-motoring indication and the generator lockout, plant operators manually tripped the turbine. A reactor trip at 1232 EDT resulted from the manual turbine trip. The NRC was notified in accordance with 10 CFR 50.72 (b) (2) (ii) June 22, 1993, at 1315 EDT.

Extensive investigations of probable cause for the turbine anti-motoring trip and generator lockout were completed. The investigations concluded that the cause was an inadvertent operation of the auxiliary governor trip lever by personnel restoring the turbine controls to normal after the turbine trip test. The unrelated inability to relatch the turbine trips was caused by incorrect clearances in the overspeed trip block between the trip relay and the relay bushing, and between the relay cup valve and the relay cover plate. These clearances were corrected and Unit 4 was returned to service on June 26, 1993.

END OF ABSTRACT

I. DESCRIPTION OF THE EVENT

On the morning of June 22, 1993, Turkey Point Unit 4 was at 100% power and conducting a turbine trip test on the main turbine in accordance with operations surveillance procedure 4-OSP-200.3, Secondary Plant Periodic Tests. At the successful completion of the turbine trip test, the plant operators were unable to relatch the turbine trip. Turkey Point Unit 4 was reduced in power with the intent of taking the turbine off line to trouble shoot and repair, if necessary, the turbine latching mechanism. Prior to the load reduction, discussions were held with operations personnel to alert them of actions to be taken (such as initiating manual trips) if any unexpected events were to occur during the load reduction. Direct communications were established between the turbine front standard and the control room for use during the load reduction. At 1231 Eastern Daylight Time (EDT), with reactor power reduced to approximately 33% power, loss of turbine control oil pressure resulted in a turbine anti-motoring trip followed by a generator lockout. Based on the turbine anti-motoring indication and the generator lockout, plant operators manually tripped the turbine. A reactor trip at 1232 EDT resulted from the manual turbine trip. An Event Response Team was established to investigate the root cause of the trip.

II. CAUSE OF THE EVENT

The release of the turbine trip test lever by the operator after receipt of the turbine anti-motoring trip indication resulted in the manual turbine trip and the subsequent reactor trip. After extensive troubleshooting of the turbine trip block, the overspeed trip block and the control oil system, no mechanical reason for the turbine valve closure could be found. The investigation results led to the conclusion that the cause of the original turbine anti-motor signal was the

inadvertent tripping of the auxiliary governor trip lever. While holding the lever on the overspeed trip block in the test position during the power reduction, the operator, who was wearing a heavy fire coat for personnel protection, may have caught the coat on the auxiliary governor trip lever causing the turbine anti-motoring indication.

A contributing cause to the turbine trip/reactor trip was the inability to relatch the turbine trip. After troubleshooting and testing the overspeed trip block and turbine trip block, a dimensional setup error in the overspeed trip relay plunger was discovered. The inability to relatch the turbine trips was caused by incorrect clearances in the overspeed trip block between the trip relay and the relay bushing, and between the relay cup valve and the relay cover plate. The dimension between the relay cup valve end surface and the relay plunger shoulder must be identical to the dimension between the end plate and the lip on the relay bushing. If these dimensions are inexact, the pressure in the oil system will not permit relatching the turbine trip.

III. ANALYSIS OF THE EVENT

During the testing of the turbine trips, the test lever allows the testing to proceed without a turbine trip occurring. If the test lever

had been returned to its normal operation position without relatching the turbine trip, an actual turbine trip would have occurred. When the turbine anti-motoring signal occurred, the test lever was released and a turbine trip and, subsequently, a reactor trip occurred. The anti-motoring signal apparently occurred when the auxiliary governor trip lever was inadvertently actuated and control oil pressure was lost. All systems responded as designed to the trip signal.

A turbine trip is an event analyzed in the Turkey Point Units 3 and 4 Updated Final Safety Analysis Report (UFSAR). The UFSAR discusses the expected plant response to a complete loss of generator load. The UFSAR analysis assumes a complete loss of load without a subsequent reactor trip and shows the adequacy of the pressure relieving devices and that no core damage results. In this event a reactor trip occurred as designed. Therefore, the UFSAR analysis bounds the turbine trip and reactor trip which occurred in this case.

This event was reported in accordance with 10 CFR 50.73 (a) (2) (iv), due to an actuation of the Reactor Protection System.

IV. CORRECTIVE ACTIONS

1. A guard preventing the inadvertent operation of the auxiliary governor trip lever was installed.

2. The critical dimensions on the relay plunger of the overspeed trip relay were restored and the relay was tested successfully. Unit 4 was returned to service on June 26, 1993.

V. ADDITIONAL INFORMATION

No other events of this type are known to have occurred at Turkey Point.

The overspeed trip device manufacture and model details are as follows:

Westinghouse Electric Corporation
Overspeed Trip Valve
Print No. 676J811

System and component identification described in this report:

SYSTEM OR COMPONENT EIIS CODE IEEE 803a/83

Main Turbine TA TRB
Turbine Trip Block TG 94
Overspeed Trip Block TG 94
Reheat Valves SB FCV
Intercept Valves TA FCV
Generator Breakers EL BKR

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P.O. Box 029100, Miami, FL, 33102-9100

FPL

L-93-166
10 CFR 50.73

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Gentlemen:

Re: Turkey Point Unit 4
Docket No. 50-251

Reportable Event: 93-002-00
Reactor Trip Due to Manual Turbine Trip

The attached Licensee Event Report 251/93-002-00 is being provided in accordance with 10 CFR 50.73 (a) (2) (iv).

If there are any questions, please contact us.

Very truly yours,

T. F. Plunkett
Vice President
Turkey Point Nuclear

TFP/JEK/jk

enclosure

cc: Stewart D. Ebneter, Regional Administrator, Reg
on II, USNRC
Ross C. Butcher, Senior Resident Inspector, USNRC, Turkey Point
Plant

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